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INTEGRAL INDUSTRIALIZATION OF THE BABASSU PALM INCLUDING LOCAL GAS AND POWER PRODUCTION

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According to national and foreign research immense areas of Brazil are covered by dense, natural vegetation of the babassu palm (Orbignya Speciosa, Attalea oleifera, etc.), susceptible of integral industrialization in addition to the conventional extraction of the high quality edible oil from the kernels of the nut, and including production of other nutritive and industrial by-products, as well as gas, tar, coke and power, the latter in sufficient quantity not only for all the energetical demands of this industry but also for in - dustrial, residential and rural electrification.

Some hundreds of the existing conventional babassu oil extracting industries are still completely dependent on the manual breaking of the extremely hard nuts, executed exclusively by some 60,000 rural families living in miserable conditions and earning some 80 US dollars per year.

A complete reorientation from primitive nut breaking by ax to modern palm forest clearing, nut harvesting, transport and drying methods is suggested, leaving the nut breaking, as far as possible, to automatized machinery, so as to make possible a large increase of oil, by-product, and general industrial, energetical and rural production.

Systematic forest clearing assures from the beginning food production for men and cattle from the medulla of the smaller, un - productive palm trees cut down, as well as excellent fibres from their palm leaves for local pulp and paper manufacture.

Mechanical nut shelling and nut breaking has been already experimentally combined with the extraction of fine comestible starch and vitamin-containing flour from the mesocarp, after previous tannin separation. Also destructive distillation of the woody endocarp, after the foregoing kernel separation, has been tried, producing a gas of some 3400 kcal/Nm3 and semi-coke and tar of good quality for subsidiary industries, as well as briquettes from the coke-powder for better transportation of this extremely valuable fuel in Brazil.

In addition to the processes already tried, it is suggested that experiment also complete gasification, sparing the expensive reterts, accesseries and gas tanks be used for producer-gas generators, suitable for smaller industries and, alternatively, for larger plants, gasification under pressure this yielding high quality distillation products and making possible, simultaneously, transportation under pressure of high quality gas to greater distances.

Local power production will be assured for smaller plants by piston gas engines, for larger plants by gas turbines, both with heat recuperation boilers, producing steam for industrial processing and eventually additional power for residential, industrial and rural electrification.

The transportation of large quantities of nuts and industrial products would require for the trucks very much gasoline or Diesel oil, which are expensive, especially when transported to distant industrial sites. The use of the nut shells, of the separated endocarp or of the residual coke from dry distillation, in modern perfectionnated gasogenes, mounted on the trucks, will assure independence from traditional expensive motor fuel.

It is suggested that the locally produced gas or coke be used where possible for direct reduction processing of smaller ferreus mineral deposits in local siderurgical industries to be created in underdeveloped areas of the babassu forests.

It is suggested that the large quantities of easy melting ashes and a part of the residual fibreus material be pressed to briquets for local civil engineering construction use. Also the epicarp fibres must be tried out for pastebeard manufacture.

To assure proper technology for these parts of the processing, which have not yet been sufficiently tested, it is suggested that a specialized "Research, Demonstration and Training Center for Babassu Utilization" be created, comprising also an Experimental Gas-Electric Power Plant.

This Center should increase the efficiency of the existing babassu oil extracting industries, as well as future small and large integral babassu industries to be created eventually according to some of the various law projects already published in the Official Journal of the National Congress.

With the purpose of stimulating use of potential local excess gas and power availabilities and to channelize them also towards other industrial, residential and rural consumption, with a broad view to future interconnection possibilities, bearing in mind the economical viewpoint as a whole and in collaboration with all other Authorities also competent for the exploitation of the largest vegetable oil and energy reserves of the world, the Concession Section of the Ministry of Mines and Energy, carrying out Presidential and Ministerial recommendations, suggests the creation of an Energetical Working Group for Integral Babassu Industrialization for the purpose of preparing the necessary steps for an efficient integral industrialization of babassu, especially as a fuel for power and siderurgical production.

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